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NEW SPECIES AND RECORDS OF MALLOPHAGA
(TRICHODECTIDAE) FROM NIGERIAN MAMMALS

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ABSTRACT—Two new species, *Procavicola* (*Meganarionoides*) *muesbecki* and *Dasyonyx* (*Dasyonyx*) *smallwoodae*, are described and illustrated from *Dendrohyrax dorsalis* collected in Nigeria. Records are given for four additional species taken from the Water Mongoose and Zorilla.

In 1966 and 1967, J. C. Geist, H. J. Herbert, and Henry W. Setzer, Division of Mammals, U. S. National Museum, Smithsonian Institution, collected mammals in Nigeria. Unfortunately, they did not collect many Mallophaga, but the few that they obtained represent two species new to science and four which are rare.

A Water Mongoose, *Atilax paludinosus* (C. Cuvier, 1829), was collected at Oban, Eastern Region on March 16, 1966 (IJJH-2127); this individual had three species of Mallophaga: *Felicola minimus* Werneck, 1948, *Felicola pygidialis* Werneck, 1948, and *Suricatoecus paralaticeps* Werneck, 1948. *Felicola acutirostris* (Stobbe, 1913), *Felicola rahmi* Emerson and Stojanovich, 1966, *Felicola macrurus* Werneck, 1948, and *Suricatoecus laticeps* (Werneck, 1942) have pre-

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viously been reported from this host; however, they were not taken on this occasion. All previous records are from Uganda and the Congo.

Three specimens of the Zorilla, *Poecilictis libyca* (Hemprich and Ehrenberg, 1832) were collected at Sokoto, Northern Region on May 10, 1966 (HJH-2399), Panisan on January 29, 1967 (JCG-1567), and Panisan on February 2, 1967 (JCG-1641). *Trichodectes zorillae* Stobbe, 1913 was collected off these three animals. Previous records are from Tunisia and Egypt.

***Procavicola* (*Meganarionoides*) *muesebecki*, n. sp.**

(Figs. 1-3)

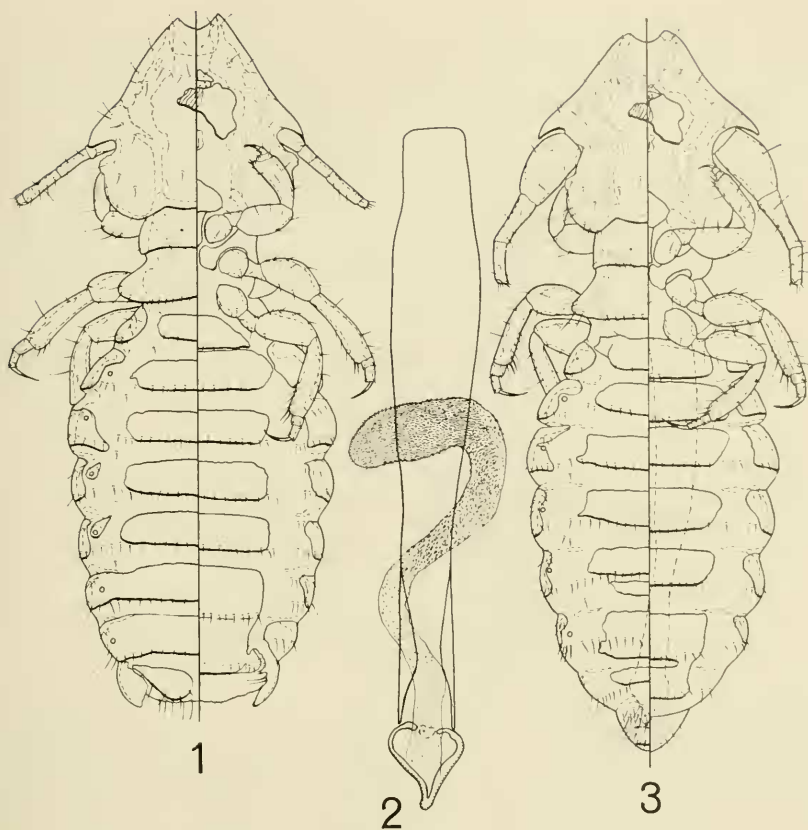
Male.—Head large, typical of subgenus, with numerous short setae on dorsal surface, and few on anterior portion of ventral surface. Posterior margin of head with only short setae. Basal antennal segment enlarged and elongate, with few short and medium setae. Prothorax short and narrow, with 6 short setae. Pterothorax expanded posteriorly, with row of short setae on posterior margin. Central tergal plates on abdominal segments II-VIII short, wide, and entire, with small additional plate on segment VII. Central sternal plates on abdominal segments II-VI short, wide, and entire. One row of short setae on posterior margin of each abdominal tergal and sternal plate. Terminal abdominal segment pointed and elongate. Shape of abdominal segments and details of chaetotaxy as shown in fig. 3. Male genitalia extremely long, as in fig. 2, occupying almost length of abdomen; parameres simple and fused distally. Genital sac long, armed with small spines. Total length, 1.62 mm.

Female.—Head, except for filiform antennae, thorax, and chaetotaxy of abdomen, except for terminal segments, similar to those of male. Shape of abdominal sternal and tergal plates as shown in fig. 1. Total length, 1.68 mm.

Type host.—*Dendrohyrax dorsalis* (Fraser, 1854).

Type material.—Holotype male, allotype female, and 100 paratypes collected at Benin City, Midwestern Region, Nigeria on January 1, 1966 (HJH-1717); 26 paratypes collected at Sapoba, Midwestern Region, Nigeria on January 6, 1966 (HJH-1744). Holotype deposited in U. S. Nat. Mus.

Discussion.—The chaetotaxy and shape of the abdominal sternal and tergal plates, and the structure of the male genitalia are distinctive. The male is closest to those of *P. (M.) angolensis* Bedford, 1936, *P. (M.) jordani* Bedford, 1936, and *P. (M.) scutifer* Werneck, 1941, all of which are illustrated and discussed by Werneck (1941). It can be distinguished from these species by the long, large genitalia which have simple fused parameres and a sac without large spines. The female is closest to that of *P. (M.) angolensis*, but differs from it by having a row of short setae on the posterior margin of the genital plate. This species is named for the noted entomologist C. F. W. Muesebeck, in appreciation of his assistance rendered the authors during the past twenty years.

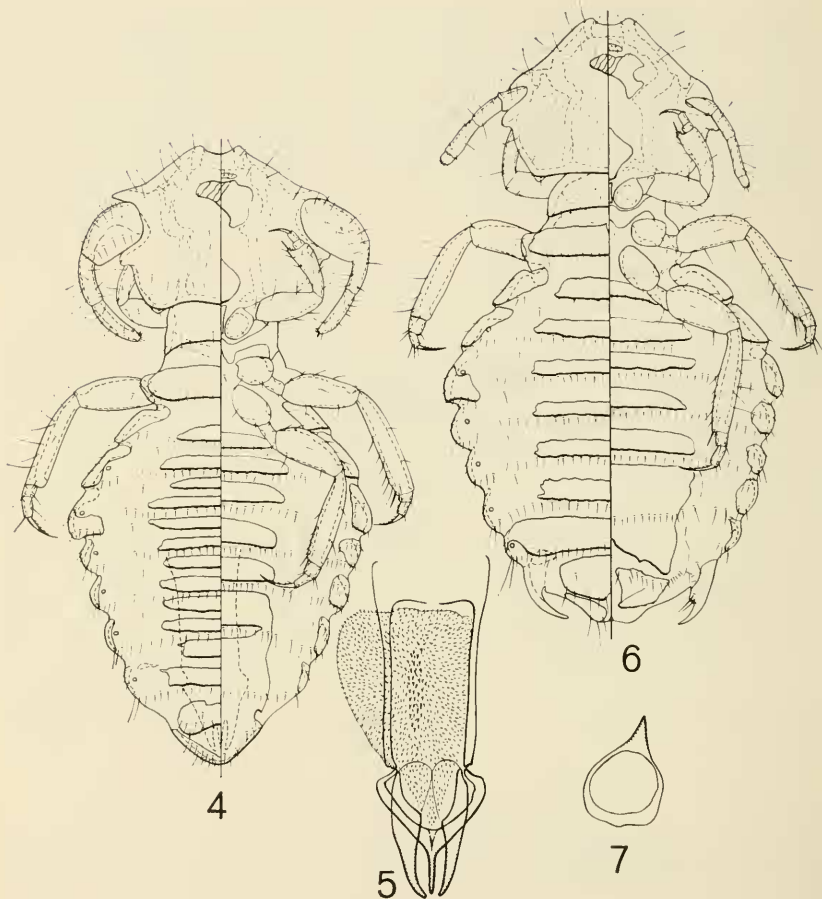


Figs. 1-3. *Procaticola muesebecki*, n. sp.: 1, dorsal-ventral view of female; 2, male genitalia; 3, dorsal-ventral view of male.

Dasyonyx (*Dasyonyx*) smallwoodae, n. sp.

(Figs. 4-7)

Male.—Head short and wide, typical of subgenus, with numerous short and medium setae on dorsal surface, and few medium setae on anterior portion of ventral surface. Posterior margin of head with only few short setae. Basal antennal segment enlarged and elongate, with numerous short and medium setae. Prothorax short and narrow, with about 8 short setae. Pterothorax short, with row of short setae on posterior margin. Abdominal segments II-III each with 1 central tergal plate; segments IV-VIII each with 2 central plates. One row of short setae on posterior margin of segments II-VIII. Abdominal segments II-VI each with 1 central sternal plate and row of short setae on posterior margin. Shape of abdominal segments and details of chaetotaxy as shown in fig. 4. Genitalia as shown in fig. 5; parameres short, wide, and curved inwardly distally;



Figs. 4-7. *Dasyonyx smallwoodae*, n. sp.: 4, dorsal-ventral view of male; 5, male genitalia; 6, dorsal-ventral view of female; 7, uterus sac.

pseudopenis elongate distally; and genital sac armed with short spines. Total length, 1.22 mm.

Female.—Head, except for filiform antennae, and thorax as for male. Abdominal segments II-VIII each with only 1 central tergal plate. Chaetotaxy of abdomen, except for terminal segments, similar to that of male. Shape of abdominal sternal and tergal plates as shown in fig. 6. Uterus sac as shown in fig. 7. Total length, 1.28 mm.

Type host.—*Dendrohyrax dorsalis* (Fraser, 1854).

Type material.—Holotype male, allotype female, and 8 paratypes collected at Benin City, Midwestern Region, Nigeria on January 1, 1966 (HJH-1717); 6 paratypes collected at Sapoba Midwestern, Region,

Nigeria on January 6, 1966 (HJH-1744). Holotype deposited in U. S. Nat. Mus.

Discussion.—This species is closest to *D. (D.) hopkinsi* Werneck, 1941. For *D. (D.) hopkinsi*, the male has only one central tergal plate on abdominal segment IV; the parameres are narrow and pointed outward distally; and the pseudopenis is short. The female genital plate and the uterus sac of *D. (D.) smallwoodae* are of different shape than these structures for *D. (D.) hopkinsi*. This species is named for Mrs. Penelope Smallwood, in recognition of her years of outstanding service as slide preparator for Mr. Muesebeck and the authors.

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SEXUAL BEHAVIOUR OF AND HYBRIDIZATION BETWEEN THREE SPECIES OF APHIDIUS NEES PARASITIC ON THE PEA APHID^{1,2} (HYMENOPTERA: APHIDIIDAE)

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ABSTRACT—A comparison of the behaviour patterns displayed during courtship and copulation by *Aphidius ervi* Haliday, *A. pulcher* Baker and *A. smithi* Sharma & Subba Rao revealed species characteristic differences in pre-mating and mating time. Males are sexually rather indiscriminate but females, in general, will accept only males of the same species. Cross-breeding was observed only between males of *pulcher* and females of *ervi*. It was not observed in any combination involving *smithi*. The history of *ervi-pulcher* in North America is explained as one of multiple introductions. Originally, *pulcher* formed part of the *ervi* gene pool. It reached partial reproductive isolation after being accidentally introduced from Europe by early settlers. The subsequent introduction of *ervi* for the purpose of biological control resulted in secondary intergradation. *A. pulcher* is considered a semispecies which, for the time being, should be classified as a geographic subspecies of *ervi*. *A. smithi* is more distantly related to *ervi* and justifies the rank of a distinct species.

The complex of parasites that is associated with the pea aphid in eastern North America offers an interesting problem in species definition. The aphid, *Acyrtosiphon pisum* (Harris) (Homoptera: Aphididae), is attacked by eight different species of hymenopterous para-

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